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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,164	07/25/2001	Gundu M. Sabde	500163.05	9145

27076 7590 10/19/2005

DORSEY & WHITNEY LLP  
INTELLECTUAL PROPERTY DEPARTMENT  
SUITE 3400  
1420 FIFTH AVENUE  
SEATTLE, WA 98101

EXAMINER

MACARTHUR, SYLVIA

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/916,164	<b>Applicant(s)</b> SABDE ET AL.	
	<b>Examiner</b> Sylvia R. MacArthur	<b>Art Unit</b> 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 60, 62, 63, 65 and 76-79 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 62, 63, 65, 76-79 and 6060 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/9/2005 8/1/2005</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 9/30/2005 have been fully considered and thus a new ground of rejection has been presented.

Obviousness double rejections are introduced and a new rejection on the merits has been introduced.

2. The finality of the previous action has been withdrawn in view of the newly discovered reference(s) to Sabde et al. Rejections based on the newly cited reference(s) follow.

3. The amendment has also entered.

### ***Claim Rejections - 35 USC § 112***

3. Claims 60-63,65,76-79 and 84-105 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Namely, the phrase "wherein the non-abrasive lubricating planrization solution further comprises homopolymers and copolymers of acrylic acid crosslinked with a polyalkenyl polyether.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686

Art Unit: 1763

F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 60,62,63,65 and 76-79 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-61 of copending Application 10/155,659 in view of Bruxvoort et al. (US 5,958,794).

This is a provisional obviousness-type double patenting rejection.

The co-pending application teaches a support table, polishing pad, carrier assembly, and non-abrasive lubricating planarising solution. The co-pending application fails to teach the lubricating solution further comprises homopolymers and copolymers as recited in claims 60, 78, and 98. This new limitation is synonymous with CARBOGEL or POLYOX as observed from the summary of invention in US 6,903,018.

Bruxvoort teaches a lubricating planarizing solution. A non-abrasive solution without abrasive particles may be ammonium hydroxide (so-called water and ammonia in the instant claims), see col. 12, lines 44-50. A lubricant-additive may be mixed with the non-abrasive solution. Bruxvoort discloses that the lubricant-additives may include various popular (well-known) lubricants **and the like** (col. 13, lines 12-30). Bruxvoort discloses that the lubricant-additives may include polyvinyl alcohols, glycerine (is also known as glycerin or glycerol, see Alban et al. (US 5,380,528) in the record as evidence). Bruxvoort also discloses that the lubricant-additives may include POLYOX which contains polyethylene glycol (see Sung Ki Lee

Art Unit: 1763

(US 3,617, 320) in the record as evidence). Because Bruxvoort discloses that the lubricant-additives may include polyethylene glycol, glycerol **and the like**. Therefore, it would have been obvious to one with ordinary skill in the art that the polypropylene glycol is included because they are all polyhydric alcohols and they have similar lubricating characteristics. Therefore, Bruxvoort teaches the claimed lubricant additives.

Bruxvoort does not disclose the viscosities of the non-abrasive solution, lubricant-additive, and lubricating planarizing solution being used in the composition. The claimed invention differs from Bruxvoort by specifying the viscosity of the non-abrasive solution, lubricant-additive, and lubricating planarizing solution.

However, the concentration and composition of each ingredient in the solution is commonly determined by routine experiment. The process of conducting routine optimizations so as to produce an expected result is obvious to one of ordinary skill in the art. In the absence of showing criticality or new, unexpected results, it is the examiner's position that a person having ordinary skill in the art at the time of the claimed invention would have found it obvious to perform routine experiments by using various compositions with various viscosities in order to reduce the friction between the fixed abrasive article and the semiconductor wafer surface during the planarization and provide the satisfactory planarization.

Changes in compositions, temperature, concentrations, or other process conditions of a process do not impart patentability unless the recited ranges are critical ( i.e., they produce a new and unexpected result that differs in kind and not merely in degree from the result of the prior art). *In re Woodruff*, 16USPQ2d 1934,1936 (Fed. Cir.1990); *In re Hoeschele*, 406 F.2d 1403, 160

Art Unit: 1763

USPQ 809; *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). MPEP 2144.05 IIA. The burden is on the applicant to establish with objective evidence that the change is critical.

Claims 60,62,63,65 and 76-79 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,903,018 in view of Molnar (US Patent No. 6,634,927 B1).

6. The patent teaches a lubricating solution wherein the non-abrasive solution has a viscosity of less than 4 cP and is mixed with a lubricant-additive mixed with honopolymers and copolymers of acrylic acid. The patent fails to teach the solution is used in a CMP apparatus.

Molnar teaches (Figs. 1-3) a support table 40, a polishing pad on the support table, the polishing pad 26 having a body, a planarizing surface on the body, and a plurality of abrasive particles fixed/attached to the body at the planarizing surface; a carrier assembly having a carrier head 16 configured to hold a substrate assembly and a drive mechanism (motor) (column 7 line 20 through column 12, line 23) attached to the carrier head to move the carrier relative to the polishing pad; and a non-abrasive lubricating planarizing solution without abrasive particles on the polishing pad (col. 8 lines 30-36). Molnar further teaches a non-abrasive lubricating solution wherein various solutions are discussed (column 26, line 9 through column 29, line 12).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 60,62,63,65 and 76-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Molnar in view of Bruxvoort.

Molnar teaches (Figs. 1-3) a support table 40, a polishing pad on the support table, the polishing pad 26 having a body, a planarizing surface on the body, and a plurality of abrasive particles fixed/attached to the body at the planarizing surface; a carrier assembly having a carried head 16 configured to hold a substrate assembly and a drive mechanism (motor) (column 7 line 20 through column 12, line 23) attached to the carrier head to move the carrier relative to the polishing pad; and a non-abrasive lubricating planarizing solution without abrasive particles on the polishing pad (col. 8 lines 30-36). Molnar further teaches a non-abrasive lubricating solution wherein various solutions are discussed (column 26, line 9 through column 29, line 12).

Molnar fails to teach the non-abrasive lubrication solution as recited in claim 60.

Bruxvoort teaches a lubricating planarizing solution. A non-abrasive solution without abrasive particles may be ammonium hydroxide (so-called water and ammonia in the instant claims), see col. 12, lines 44-50. A lubricant-additive may be mixed with the non-abrasive solution. Bruxvoort discloses that the lubricant-additives may include various popular (well-known) lubricants **and the like** (col. 13, lines 12-30). Bruxvoort discloses that the lubricant-additives may include polyvinyl alcohols, glycerine (is also known as glycerin or glycerol, see Alban et al. (US 5,380,528) in the record as evidence). Bruxvoort also discloses that the lubricant-additives may include POLYOX which contains polyethylene glycol (see Sung Ki Lee (US 3,617, 320) in the record as evidence). Because Bruxvoort discloses that the lubricant-additives may include polyethylene glycol, glycerol **and the like**. Therefore, it would have been obvious to one with ordinary skill in the art that the polypropylene glycol is included because

Art Unit: 1763

they are all polyhydric alcohols and they have similar lubricating characteristics. Therefore, Bruxvoort teaches the claimed lubricant additives.

Bruxvoort does not disclose the viscosities of the non-abrasive solution, lubricant-additive, and lubricating planarizing solution being used in the composition. The claimed invention differs from Bruxvoort by specifying the viscosity of the non-abrasive solution, lubricant-additive, and lubricating planarizing solution.

However, the concentration and composition of each ingredient in the solution is commonly determined by routine experiment. The process of conducting routine optimizations so as to produce an expected result is obvious to one of ordinary skill in the art. In the absence of showing criticality or new, unexpected results, it is the examiner's position that a person having ordinary skill in the art at the time of the claimed invention would have found it obvious to perform routine experiments by using various compositions with various viscosities in order to reduce the friction between the fixed abrasive article and the semiconductor wafer surface during the planarization and provide the satisfactory planarization.

Changes in compositions, temperature, concentrations, or other process conditions of a process do not impart patentability unless the recited ranges are critical ( i.e., they produce a new and unexpected result that differs in kind and not merely in degree from the result of the prior art). *In re Woodruff*, 16USPQ2d 1934,1936 (Fed. Cir.1990); *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809; *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). MPEP 2144.05 IIA. The burden is on the applicant to establish with objective evidence that the change is critical.

The motivation to combine the teachings of Molnar et al and Bruxvoort is that Bruxvoort teaches POLYOX a suitable non-abrasive lubricating planarizing solution.



Art Unit: 1763

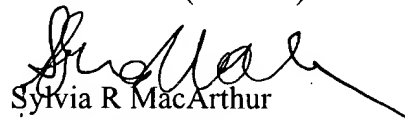
Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to combine the teachings of Bruxvoort and Molnar et al.

*Conclusion*

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the core hours of 9 a.m. and 3 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sylvia R MacArthur  
Patent Examiner  
Art Unit 1763

October 17, 2005